

Claims:

1. Process for producing an optical beam forming device (1) which has a plurality of lens means which are arranged offset to one another in at least one direction on at least one optically functional interface, characterized in that the beam forming device (1) is assembled from at least two optically functional modules (30, 31, 32, 33), each of the at least two optically functional modules (30, 31, 32, 33) on a first optically functional interface having at least one first cylinder lens means (20) and on the second optically functional interface which is essentially opposite the first at least one second cylinder lens means (21) with a cylinder axis which is aligned essentially perpendicular to the cylinder axis of the first cylinder lens means (20) which is located on the first interface.

2. Process as claimed in claim 1, wherein at least two optically functional modules (30, 31, 32, 33) are assembled such that the cylinder axes of the first cylinder lens means (20) are oriented at least partially parallel to one another on a first optically functional interface of the beam forming device (1).

3. Process as claimed in claim 1 or 2, wherein at least two optically functional modules (30, 31, 32, 33) are assembled such that the cylinder axes of the second cylinder lens means (21) are oriented at least partially parallel to one another on a second optically functional interface of the beam forming device (1).

4. Process as claimed in one of claims 1 to 3, wherein at least two optically functional modules (30, 31, 32, 33) of at least one cylinder lens array (2) with a plurality of first cylinder lens means (20) on the first side and a plurality of second cylinder lens means (21) on a second side

opposite the first are cut.

5. Process as claimed in claim 4, wherein the cylinder lens array (2) is cut by planes which are oriented essentially parallel to the lengthwise axes of the first cylinder lens means (20).

6. Process as claimed in claim 4 or 5, wherein the cylinder lens array (2) is cut by planes which extend through the joint edges of adjacent first cylinder lens means (20) and which orthogonally intersect the cylinder axes of the second cylinder lens means (21).

7. Process as claimed in one of claims 1 to 6, wherein the lengthwise sides of the optically functional modules (30, 31, 32, 33) are contoured at least in sections by segments being cut out of the lengthwise sides.

8. Process as claimed in claim 7, wherein the lengthwise sides are contoured at least in sections such that the joining of at least two optically functional modules (30, 31, 32, 33) takes place such that the second cylinder lens means (21) are located offset to one another at least in one direction.

9. Process as claimed in claim 7 or 8, wherein segments of the same size are cut out of the lengthwise sides of the optically functional modules (30, 31, 32, 33).

10. Process as claimed in one of claims 7 to 9, wherein segments with cross sections which have an essentially triangular outline are cut out of the lengthwise sides of the optically functional modules (30, 31, 32, 33).

11. Process as claimed in one of claims 1 to 10, wherein the optically functional modules (30, 31, 32, 33) are joined in such a way that on the second interface of the beam forming device an essentially hexagonally packed arrangement of the second cylinder lens means (21) is formed.

12. Process as claimed in one of claims 1 to 11, wherein the optically functional modules

(30, 31, 32, 33) are cut out of the cylinder lens array (2) and contoured by means of ultrasound.

13. Process as claimed in one of claims 1 to 11, wherein the optically functional modules (30, 31, 32, 33) are cut out of the cylinder lens array (2) and contoured by means of laser beams.

14. Process as claimed in one of claims 1 to 11, wherein the optically functional modules (30, 31, 32, 33) are cut out of the cylinder lens array (2) and contoured by means of electron beams.

15. Process as claimed in one of claims 1 to 14, wherein the optically functional modules (30, 31, 32, 33) are cemented to one another at least in sections.

16. Process as claimed in one of claims 1 to 15, wherein the optically functional modules (30, 31, 32, 33) are soldered to one another at least in sections.

17. Beam forming device (1) which has a plurality of lens means which are arranged offset to one another in at least one direction on at least one optically functional interface, wherein the beam forming device (1) is produced by means of a process as claimed in one of claims 1 to 16.

18. Beam forming device (1) as claimed in claim 17, wherein the beam forming device (1) comprises cylinder lens means (20, 21) which are shaped convexly and/or concavely and which have spherical and/or aspherical jacket surfaces.

19. Beam forming device (1) as claimed in claim 17 or 18, wherein the lens means are arranged essentially hexagonally tightly packed on at least one optically functional interface of the beam forming device (1).

20. Beam forming device (1) as claimed in one of claims 17 to 19, wherein the outer contour of the beam forming device (1) is essentially round, rectangular, square or hexagonal.

21. Beam forming device (1) as claimed in one of claims 17 to 20, wherein the beam forming device (1) consists preferably of glass, especially of silica glass, or of plastic.